

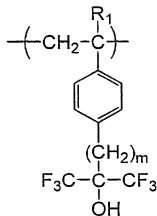
WHAT IS CLAIMED IS:

1. A pattern formation material comprising:

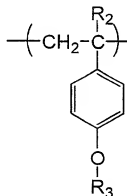
a polymer including a first unit represented by
Chemical Formula 1 and a second unit represented by Chemical
Formula 2; and

an acid generator:

Chemical Formula 1:



Chemical Formula 2:



wherein R_1 and R_2 are the same or different and
selected from the group consisting of an alkyl group, a

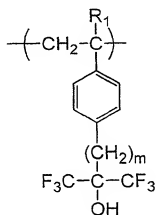
chlorine atom and an alkyl group including a fluorine atom;
R₃ is a protecting group released by an acid; and m is an
integer of 0 through 5.

2. A pattern formation material comprising:

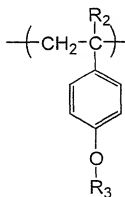
a polymer including a first unit represented by
Chemical Formula 3, a second unit represented by Chemical
Formula 4 and a third unit represented by Chemical Formula 5;
and

an acid generator:

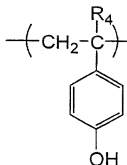
Chemical Formula 3:



Chemical Formula 4:



Chemical Formula 5:



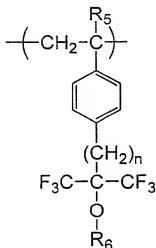
wherein R₁, R₂ and R₄ are the same or different and selected from the group consisting of an alkyl group, a chlorine atom and an alkyl group including a fluorine atom; R₃ is a protecting group released by an acid; and m is an integer of 0 through 5.

3. A pattern formation material comprising:

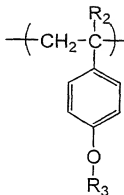
a polymer including a first unit represented by Chemical Formula 6 and a second unit represented by Chemical Formula 7; and

an acid generator:

Chemical Formula 6:



Chemical Formula 7:

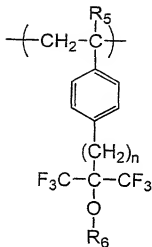


10034355-010302

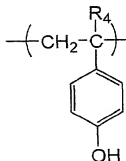
10 wherein R_2 and R_3 are the same or different and selected from the group consisting of an alkyl group, a chlorine atom and an alkyl group including a fluorine atom; R_3 and R_6 are the same or different, at least one of which is a protecting group released by an acid; and n is an integer of 0 through 5.

- 15 4. A pattern formation material comprising:
- a polymer including a first unit represented by Chemical Formula 8 and a second unit represented by Chemical Formula 9; and
- an acid generator:
- 20

Chemical Formula 8:



Chemical Formula 9:



wherein R_4 and R_5 are the same or different and
selected from the group consisting of an alkyl group, a
chlorine atom and an alkyl group including a fluorine atom;
 R_6 is a protecting group released by an acid; and n is an
integer of 0 through 5.

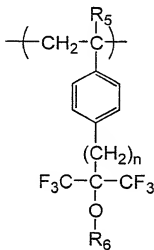
5. A pattern formation material comprising:

a polymer including a first unit represented by

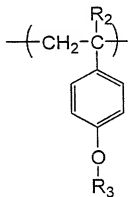
Chemical Formula 10, a second unit represented by Chemical
Formula 11 and a third unit represented by Chemical Formula
12; and

an acid generator:

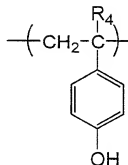
Chemical Formula 10:



Chemical Formula 11:



Chemical Formula 12:

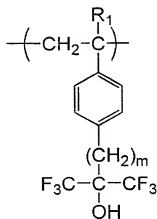


wherein R_2 , R_4 and R_5 are the same or different and selected from the group consisting of an alkyl group, a chlorine atom and an alkyl group including a fluorine atom; R_3 and R_6 are the same or different, at least one of which is a protecting group released by an acid; and n is an integer of 0 through 5.

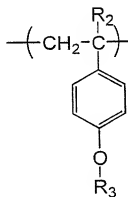
6. A pattern formation method comprising the steps of:

forming a resist film by applying, on a substrate, a pattern formation material containing a polymer including a first unit represented by Chemical Formula 1 and a second unit represented by Chemical Formula 2, and an acid generator;

Chemical Formula 1:



10
Chemical Formula 2:



wherein R_1 and R_2 are the same or different and
20 selected from the group consisting of an alkyl group, a
chlorine atom and an alkyl group including a fluorine atom;
 R_3 is a protecting group released by an acid; and m is an
integer of 0 through 5;

irradiating said resist film with exposing light of a
25 wavelength shorter than a 180 nm band for pattern exposure;

and

forming a resist pattern by developing said resist film after the pattern exposure.

7. The pattern formation method of Claim 6,

wherein said exposing light is a Xe₂ laser beam, a F₂ laser beam, a Kr₂ laser beam, an ArKr laser beam or an Ar₂ laser beam.

8. The pattern formation method of Claim 6,

wherein said exposing light is soft-X rays.

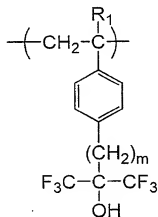
9. The pattern formation method of Claim 6,

wherein said exposing light is hard-X rays.

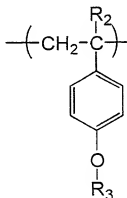
10. A pattern formation method comprising the steps of:

forming a resist film by applying, on a substrate, a pattern formation material containing a polymer including a first unit represented by Chemical Formula 3, a second unit represented by Chemical Formula 4 and a third unit represented by Chemical Formula 5, and an acid generator:

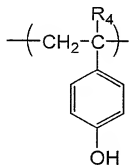
Chemical Formula 3:



Chemical Formula 4:



Chemical Formula 5:



15

wherein R_1 , R_2 and R_4 are the same or different and selected from the group consisting of an alkyl group, a chlorine atom and an alkyl group including a fluorine atom; R_3 is a protecting group released by an acid; and m is an integer of 0 through 5;

20 irradiating said resist film with exposing light of a wavelength shorter than a 180 nm band for pattern exposure; and

forming a resist pattern by developing said resist film after the pattern exposure.

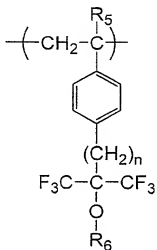
11. The pattern formation method of Claim 10,
wherein said exposing light is a Xe₂ laser beam, a F₂
laser beam, a Kr₂ laser beam, an ArKr laser beam or an Ar₂
laser beam.

12. The pattern formation method of Claim 10,
wherein said exposing light is soft-X rays.

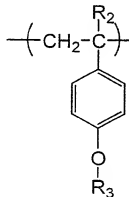
13. The pattern formation method of Claim 10,
wherein said exposing light is hard-X rays.

14. A pattern formation method comprising the steps of:
forming a resist film by applying, on a substrate, a
pattern formation material containing a polymer including a
first unit represented by Chemical Formula 6 and a second
unit represented by Chemical Formula 7, and an acid
generator:

Chemical Formula 6:



Chemical Formula 7:



10 wherein R2 and R5 are the same or different and
selected from the group consisting of an alkyl group, a
chlorine atom and an alkyl group including a fluorine atom;
R3 and R6 are the same or different, at least one of which is
a protecting group released by an acid; and n is an integer
15 of 0 through 5;

irradiating said resist film with exposing light of a
wavelength shorter than a 180 nm band for pattern exposure;
and

20 forming a resist pattern by developing said resist film
after the pattern exposure.

15. The pattern formation method of Claim 14,

wherein said exposing light is a Xe2 laser beam, a F2
laser beam, a Kr2 laser beam, an ArKr laser beam or an Ar2
laser beam.

25 16. The pattern formation method of Claim 14,

wherein said exposing light is soft-X rays.

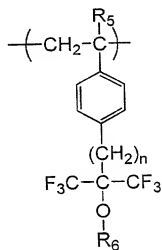
17. The pattern formation method of Claim 14,

wherein said exposing light is hard-X rays.

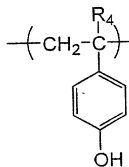
18. A pattern formation method comprising the steps of:

forming a resist film by applying, on a substrate, a pattern formation material containing a polymer including a first unit represented by Chemical Formula 8 and a second unit represented by Chemical Formula 9, and an acid generator:

Chemical Formula 8:



Chemical Formula 9:



wherein R_4 and R_5 are the same or different and selected from the group consisting of an alkyl group, a chlorine atom and an alkyl group including a fluorine atom; R_6 is a protecting group released by an acid; and n is an integer of 0 through 5;

irradiating said resist film with exposing light of a wavelength shorter than a 180 nm band for pattern exposure; and

forming a resist pattern by developing said resist film after the pattern exposure.

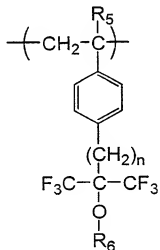
19. The pattern formation method of Claim 18, wherein said exposing light is a Xe_2 laser beam, a F_2 laser beam, a Kr_2 laser beam, an ArKr laser beam or an Ar_2 laser beam.

20. The pattern formation method of Claim 18, wherein said exposing light is soft-X rays.

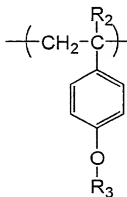
21. The pattern formation method of Claim 18, wherein said exposing light is hard-X rays.

22. A pattern formation method comprising the steps of: forming a resist film by applying, on a substrate, a pattern formation material containing a polymer including a first unit represented by Chemical Formula 10, a second unit represented by Chemical Formula 11 and a third unit represented by Chemical Formula 12, and an acid generator:

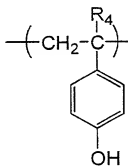
Chemical Formula 10:



Chemical Formula 11:



Chemical Formula 12:



wherein R_2 , R_4 and R_5 are the same or different and selected from the group consisting of an alkyl group, a chlorine atom and an alkyl group including a fluorine atom;

R_3 and R_6 are the same or different, at least one of which is

1003436 010302
2025.10.09 09:20:01
a protecting group released by an acid; and n is an integer
of 0 through 5;

irradiating said resist film with exposing light of a
wavelength shorter than a 180 nm band for pattern exposure;

5 and

forming a resist pattern by developing said resist film
after the pattern exposure.

23. The pattern formation method of Claim 22,

10 wherein said exposing light is a Xe₂ laser beam, a F₂
laser beam, a Kr₂ laser beam, an ArKr laser beam or an Ar₂
laser beam.

24. The pattern formation method of Claim 22,

wherein said exposing light is soft-X rays.

25. The pattern formation method of Claim 22,

15 wherein said exposing light is hard-X rays.